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Original Article

Factors Contributing to Parental Vaccine Hesitancy in Selected Barangays of San Pablo City, Laguna

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Abstract. Vaccine hesitancy remains a major public health concern that limits vaccination uptake, yet limited studies have examined how information sources influence parental decisions at the barangay level. This study aimed to determine the factors associated with vaccine hesitancy among parents in selected barangays in San Pablo City, Laguna. A descriptive-correlational design was used, involving parents of children aged 0 to 18 selected through stratified random sampling. Data were collected using a validated adapted questionnaire and analyzed using mean, standard deviation, and chi-square test. Results showed that social media was the primary source of vaccine-related information influencing parents' decisions. Parents reported moderate concerns about vaccine side effects and negative information. A significant association was found between the primary source of information and parental vaccine concerns ($p = .010$), while other variables showed no significant relationships. These findings suggest that information source plays a limited but important role in shaping vaccine hesitancy. The study highlights the need for targeted and reliable health communication strategies to address misinformation and improve vaccine acceptance among parents.

Keywords: *Vaccine hesitancy; Parental decisions; Social media; Selected barangays in San Pablo City, Laguna.*

Vaccines are a safe and effective way to protect individuals and communities from infectious diseases before exposure occurs. By strengthening the immune system, vaccines prevent illness and reduce disease burden (World Health Organization, 2024). In the Philippines, the Expanded Program on Immunization (EPI), established through Presidential Decree No. 996 in 1976, aims to provide access to essential childhood vaccines. It was later expanded through Republic Act No. 10152 to include vaccines for pneumococcal disease, rotavirus, and human papillomavirus (Reyes et al., 2020). Despite these efforts, vaccine hesitancy, defined as the delay in acceptance or refusal of vaccines despite availability, has emerged as a critical public health issue.

Globally, vaccine hesitancy is recognized as a major public health threat, driven by misinformation, limited healthcare access, and public distrust resulting from past controversies (Lane et al., 2022). In the Philippines, vaccine confidence declined following the coronavirus pandemic and misinformation linked to the Dengvaxia

controversy in 2016 (Maru, 2023). Misinformation from social media and news outlets further amplified parental concerns, contributing to mistrust in vaccination programs. This decline in confidence is reflected in the reemergence of vaccine-preventable diseases. In 2019, the Department of Health confirmed the return of polio, despite the country being declared polio-free in 2000 (Paris, 2019). Measles cases also increased significantly, rising from 2,428 cases in 2017 to 48,525 in 2019 (Domai et al., 2021), and further increased by 299% from 2022 to 2023 (Ombay, 2023). UNICEF (2023) reported that approximately 1 million Filipino children missed routine vaccinations, along with a 25% decline in the perceived importance of vaccines.

At the local level, data from the City Health Office (CHO) of San Pablo City indicate persistent gaps in immunization coverage among children under the National Immunization Program (NIP) from 2016 to 2024. In 2024, a considerable proportion of children remained unvaccinated or incompletely immunized, as indicated by the following coverage rates: Bacillus Calmette-Guérin (47.36%), Hepatitis B (48.45%), Pentavalent (60.11%), Oral Polio Vaccine (41.41%), Pneumococcal Conjugate Vaccine (43.90%), Inactivated Polio Vaccine (47.61%), Measles-Mumps-Rubella (48.63%), and Human Papillomavirus (99.08%).

Although many studies examine vaccine hesitancy at national and global levels, few studies examine it at the barangay level. Vaccine hesitancy varies across communities, highlighting the need for location-specific strategies (Kiani et al., 2025). Anchored on Nola Pender's Health Promotion Model and the 5C's Model of Vaccine Hesitancy, this study provides a comprehensive framework for examining the behavioral, cognitive, and psychological determinants of vaccination among parents. The Health Promotion Model emphasizes the influence of individual characteristics and experiences, as well as behavior-specific cognitions and affect, on health-related actions. In parallel, the 5C's Model identifies key drivers of vaccine hesitancy, including confidence, complacency, convenience or constraint, calculation, and collective responsibility. These frameworks provide a structured lens for analyzing parents' perceptions and decisions regarding immunization.

This study aims to explore factors contributing to vaccine hesitancy among parents in five barangays in San Pablo City, Laguna: Barangay San Roque, Sta. Maria Magdalena, Sta. Felomina, San Francisco, and Bautista (City Health Office, 2024). Findings from this study aim to support targeted interventions, address vaccine-related concerns, and restore vaccine confidence at the community level.

Methodology

Research Design

The study's research design is quantitative. According to Ghanad (2023), quantitative research aims to generalize and quantify the data gathered from the sample population. This study utilized a descriptive-correlational design to explore the factors contributing to parental vaccine hesitancy in selected barangays of San Pablo City, Laguna.

Participants and Sampling Technique

The study was conducted in five barangays in San Pablo City: San Roque, Sta. Maria Magdalena, Sta. Felomina, San Francisco, and Bautista. These barangays were selected based on official immunization data from the City Health Office (CHO), which showed lower immunization coverage under the National Immunization Program (NIP) from 2016 to 2024. It should be noted that immunization data from private clinics, hospitals, and individual pediatricians were not included, which may have led to an underestimation of the actual vaccination coverage in the study area.

Table 1. *Distribution of the sample*

Barangay	Total Population	Sample Size
San Roque	3,388	47
Sta. Maria Magdalena	2,828	40
Sta. Felomina	3,658	51
San Francisco	15, 265	214
Bautista	3,278	46

A stratified random sampling technique was employed to ensure proportional representation across the selected barangays. Population data per barangay, obtained from CHO records, served as the basis for sample allocation. A total of 398 parents and guardians of children aged 0–18 years were included in the study. The sample was proportionally distributed as follows: San Roque (47), Sta. Maria Magdalena (40), Sta. Felomina (51), San Francisco (214), and Bautista (46). Eligible participants were parents or guardians of children aged 0–18 years residing in the

selected barangays. Those who met the inclusion criteria and provided informed consent were included in the study.

Research Instrument

The researchers used a validated survey questionnaire adapted from the study of Casiño and Walag (2022), entitled "Issues and Challenges of Factors that Affect, and the Primary Influences of Parents' Decision to Vaccinate their Adolescent: A Case of a Local National High School in Cagayan de Oro City, Philippines". The research questionnaire was divided into three sections: primary source of information, factors contributing to parent hesitancy, and parents' concerns and challenges regarding vaccines and vaccination programs. For Table 3, a ranking scale from 1 to 9 was used to determine the primary sources of information that influence parents' vaccination decisions, where 1 represents the most influential source and 9 the least. The results were analyzed using mean rank, in which a lower mean rank indicates greater influence. A four-point Likert scale was used: 4 = strongly agree, 3 = agree, 2 = disagree, and 1 = strongly disagree.

To establish content validity, the instrument was evaluated by a panel of experts, including a pediatrician, a community health nurse, and a community health nursing instructor, who assessed the relevance, clarity, and appropriateness of each item. Revisions were made in response to their recommendations to improve clarity and contextual suitability. Additionally, a Filipino and English instructor reviewed the questionnaire to ensure linguistic accuracy. A pilot test with 30 respondents was conducted to assess the instrument's reliability and clarity. The internal consistency of the questionnaire was measured using Cronbach's alpha, with values ranging from 0.703 to 0.943, indicating acceptable to excellent internal consistency. These results suggest that the instrument is generally reliable for measuring parental vaccine hesitancy, with most subscales exhibiting good to acceptable internal consistency.

Data Gathering Procedure

To facilitate the study, the researchers prepared and submitted formal request letters to the City Health Office (CHO) of San Pablo City, Laguna, to obtain relevant data on the proportion of unvaccinated individuals under the National Expanded Immunization Program across the city's barangays. Specifically, data from 2016 to 2024 were requested, including the identification of the barangays with the highest number of unvaccinated individuals. With the permission of the research adviser and the dean of the College of Nursing, approval was also secured from selected barangay officials and barangay health personnel of Barangays San Roque, Sta. Maria Magdalena, Sta. Felomina, San Francisco, and Bautista to serve as research locales.

Data were gathered through face-to-face survey administration with qualified respondents in the selected barangays, adhering strictly to research protocols to ensure organized and consistent data collection. Participants were identified through a house-to-house approach, in which households were visited and screened for children in the specified age group. Prior to participation, respondents were informed of the study's purpose, objectives, and potential benefits. The study did not impose a minimum residency requirement; however, only individuals who were currently residing in the barangay at the time of data collection were considered eligible for inclusion.

Data Analysis Procedure

The collected data were analyzed using appropriate statistical treatments to address the research objectives. Descriptive statistics, particularly the mean and standard deviation, were used to characterize respondents' average responses and assess the variability and consistency of their perceptions regarding vaccine-related concerns, contributing factors to parental hesitancy, and primary sources of information. In addition, the Chi-square test was employed as an inferential statistical tool to explore the relationships between categorical variables and to determine whether significant associations existed among the identified factors.

Ethical Considerations

Ethical considerations were strictly observed in accordance with the National Ethical Guidelines for Health Research and the Data Privacy Act of 2012. The respondents were provided with a detailed briefing on the study's purpose, objectives, and significance prior to data collection. Participation was voluntary, and informed consent was obtained, allowing respondents to withdraw from the study at any time without penalty or need for explanation. All collected information was treated with strict confidentiality and anonymity, and no personal data was disclosed, in compliance with applicable data privacy regulations. Measures were implemented to protect respondents and prevent potential harm throughout the data collection process.

Results and Discussion

Table 2 presents the primary sources of information influencing parents' decisions on childhood vaccination, revealing issues related to trust, accessibility, and health communication. Social media (*M* = 3.59) was identified as the most influential primary source of information, indicating that parents frequently rely on digital platforms for vaccination-related information. This reliance can be attributed to the accessibility and simplified presentation of content on social media, which may be easier for parents to understand. A study by Nurmi et al. (2023) suggests that distrust in government institutions and medical experts can further drive parents toward social media, despite awareness of misinformation. This highlights the need for public health authorities to strengthen their presence on digital platforms and to communicate more clearly.

Table 2. *Primary Sources of Information that Affect Parents' Decision on Vaccinating Children in the Selected Barangays*

Rank	Primary Source	Mean	Rank	Interpretation
1	Social Media	3.59	1	Most Influential
2	Family/Relatives	3.86	2	Highly Influential
3	Department of Health	4.04	3	Moderately Influential
4	Doctors and Health Care Professionals	4.17	4	Moderately Influential
5	TV News	4.20	5	Moderately Influential
6	Friends	4.69	6	Less Influential
7	Neighbors	4.97	7	Less Influential
8	Radio News	7.19	8	Less Influential
9	News Paper	8.27	9	Less Influential

Family and relatives ranked second (*M* = 3.86), emphasizing the strong influence of interpersonal relationships on vaccination decisions. Trust within families outweighs the trust in formal institutions, allowing beliefs and attitudes toward vaccines to be shared. When vaccine hesitancy exists among family decision-makers, it can influence others in the household. As supported by the study by Jing-Shan et al. (2023), vaccination decisions are shaped by collective family dynamics rather than by individual choice alone, highlighting the importance of family- and community-based vaccination interventions. The Department of Health ranked third (*M* = 4.04), indicating that parents still rely on official health institutions for vaccination information despite expressing distrust. This shows a complex relationship in which parents may question institutional credibility while still recognizing the authority of the DOH. A study by Casiño and Walag (2022) showed that although respondents have distrust of the Department of Health, it remains the most influential factor in their decision to vaccinate their children.

Factors that Contribute to Parents' Hesitancy Towards Vaccinating Children

Table 3 depicts the factors that contribute to parents' hesitancy to vaccinate their children, including accessibility barriers. Overall, the data were all categorized as "Low Perceived Barrier" (*M* = 2.41) (*SD* = 0.77), suggesting that issues like service availability, transportation cost, and distance have little influence on vaccine decisions. This result might be explained by respondents' houses being close to the health center, thereby reducing travel time and costs. Many parents might walk to health centers, making them more accessible and less expensive. Furthermore, the low perception that the services reach households indicates that health workers conduct house-to-house visits. These findings, aligned with those of Migriño et al. (2020), showed that the majority reported that logistical and financial concerns did not prevent them from vaccinating their children. In contrast, a study by Farajzadeh et al. (2023) found a significant association between vaccine hesitancy and distance to the barangay health center.

Table 3. *Factors that Contribute to Parents' Hesitancy Towards Vaccinating Children in Terms of Accessibility Barriers*

	Indicators	Mean	SD	Interpretation
1.	The distance of the Barangay Health Center from my home makes it difficult for me to access vaccination services.	2.48	0.83	Low Perceived Barrier
2.	The cost of travel makes it difficult for me to access services at the Barangay Health Center.	2.36	0.74	Low Perceived Barrier
3.	The Health Services in our Barangay do not reach the area where we live.	2.39	0.76	Low Perceived Barrier
Column Mean		**2.41**	**0.77**	**Low Perceived Barrier**

Legend: 1-1.74 - No Perceived Barrier (Strongly Disagree); 1.75-2.49 - Low Perceived Barrier (Disagree); 2.50-3.24 - Moderate Perceived Barrier (Agree); 3.25-4.00 - High Perceived Barrier (Strongly Agree)

Table 4 shows an overall mean score of 2.82 (*SD* = 0.89), interpreted as a "Moderate Perceived Barrier", indicating that parental vaccine concerns exist but are not strong enough to fully prevent childhood vaccination. This suggests that parents experience hesitancy rather than outright refusal, reflecting an internal conflict between

perceived risks and recognized benefits of vaccination. The findings indicate that experiential and emotional factors, such as concerns about adverse reactions or a child's prior vaccine experience, influence parental decision-making more than logistical issues. These concerns likely stem from exposure to negative vaccine narratives about vaccine safety, which heighten perceived risk even when scientific evidence supports vaccination. However, the moderate level of concern suggests that parents still maintain some trust in vaccines or healthcare providers, preventing these fears from becoming absolute barriers. This highlights that improving logistics alone may not significantly reduce vaccine hesitancy. Instead, the results align with Kumar et al. (2022), who found that safety and efficacy concerns are primary contributors to low vaccine acceptance despite vaccine availability.

Table 4. *Factors that Contribute to Parents' Hesitancy Towards Vaccinating Children in Terms of Parental Vaccine Concerns*

	Indicators	Mean	SD	Interpretation
1.	I have experienced a situation before where my child had a reaction to a vaccine.	3.01	0.96	Moderate Perceived Barrier
2.	I have felt hesitant to vaccinate my child.	3.03	0.89	Moderate Perceived Barrier
3.	I am not available on the days vaccines are offered at the Barangay Health Center	2.43	0.81	Low Perceived Barrier
Column Mean		**2.82**	**0.89**	**Moderate Perceived Barrier**

Legend: No Perceived Barrier (Strongly Disagree); 1.75-2.49 - Low Perceived Barrier (Disagree); 2.50-3.24 - Moderate Perceived Barrier (Agree); 3.25-4.00 - High Perceived Barrier (Strongly Agree)

Table 5 shows an overall mean score of 3.10 (*SD* = 0.90), interpreted as a "Moderate Perceived Barrier", indicating that exposure to negative news and rumors contributes to parental vaccine hesitancy but does not entirely prevent vaccination. Among the factors examined, televised negative news emerged as the most frequently encountered, suggesting that traditional mass media remains a powerful influence on parental perceptions. This finding may be explained by the high credibility often attributed to televised news, which can amplify fear and uncertainty when vaccine-related risks or adverse events are highlighted without adequate context. Repeated exposure to such content may increase perceived danger, even when the information is incomplete or sensationalized.

Table 5. *Factors that Contribute to Parents' Hesitancy Towards Vaccinating Children in Terms of the Influence of Negative News and Rumors*

	Indicators	Mean	SD	Interpretation
1.	I have come across negative news on television about vaccines.	3.22	0.86	Moderate Perceived Barrier
2.	I have heard negative rumors about vaccines.	3.17	0.90	Moderate Perceived Barrier
3.	I have been influenced by others who believe that vaccines are unsafe.	2.91	0.93	Moderate Perceived Barrier
Column Mean		**3.10**	**0.90**	**Moderate Perceived Barrier**

Legend: 1-1.74 - No Perceived Barrier (Strongly Disagree); 1.75-2.49 - Low Perceived Barrier (Disagree); 2.50-3.24 - Moderate Perceived Barrier (Agree); 3.25-4.00 - High Perceived Barrier (Strongly Agree)

Although social media and interpersonal communication also spread vaccine-related information, their influence appears less pronounced, possibly because parents are more selective or skeptical of these sources compared to mainstream media. These results are consistent with Patelarou et al. (2021), who noted that media outlets can both inform and misinform the public, thereby contributing to vaccine hesitancy. Similarly, Hyland-Wood et al. (2021) emphasized that digital and social media accelerate the spread of both accurate information and misinformation, increasing confusion and distrust. These findings imply that media-driven narratives significantly shape perceptions of vaccines, underscoring the need for responsible reporting and proactive public health communication to counter misinformation and reduce vaccine hesitancy.

Table 6. *Factors that Contribute to Parents' Hesitancy Towards Vaccinating Children in Terms of Distrust in Government and Health Institutions*

	Indicators	Mean	SD	Interpretation
1.	I prefer receiving alternative vaccines at private health clinics over the Barangay Health Center.	2.64	0.82	Moderate Perceived Barrier
2.	I have a low level of trust in the healthcare workers of the Barangay Health Center.	2.26	0.71	Low Perceived Barrier
3.	I feel uncertain about the Department of Health initiatives when it comes to vaccination.	2.36	0.72	Low Perceived Barrier
Column Mean		**2.42**	**0.75**	**Low Perceived Barrier**

Legend: 1-1.74 - No Perceived Barrier (Strongly Disagree); 1.75-2.49 - Low Perceived Barrier (Disagree); 2.50-3.24 - Moderate Perceived Barrier (Agree); 3.25-4.00 - High Perceived Barrier (Strongly Agree)

Table 6 shows an overall mean score of 2.42 (*SD* = 0.75), interpreted as a "Low Perceived Barrier", suggesting that distrust toward government and healthcare institutions is not a primary determinant of vaccine hesitancy among the respondents. This relatively low level of distrust may be attributed to the sustained credibility of barangay health workers and the continued implementation of national immunization programs by the Department of

Health (DOH), which helps reinforce confidence in vaccination at the community level. Despite past vaccine-related controversies, institutional trust appears to remain largely intact, particularly when reinforced by interpersonal relationships between healthcare workers and parents. This finding aligns with the study of Rozek et al. (2021), which reported that the majority of respondents across multiple countries expressed moderate to high levels of trust in government authorities and healthcare institutions.

In contrast, the results revealed that it did not stem from institutional distrust, but from structural and service-related factors that influence healthcare-seeking behavior. Limited clinic hours, fixed immunization schedules, overcrowding, and perceived inefficiencies in public health facilities may have contributed to the view that private clinics offer greater convenience and higher-quality service. As supported by Pattnaik et al. (2023), parents - particularly those with work-related constraints - may prioritize accessibility over cost or institutional affiliation. This finding implies that trust alone is insufficient to ensure the utilization of public vaccination services; instead, service delivery deficiencies may indirectly reinforce reliance on private providers, potentially widening disparities in vaccine access among populations economically dependent on public healthcare.

Concerns and Challenges Regarding Vaccines and Vaccination Programs

Table 7 shows an overall mean score of 2.27 (*SD* = 0.76), interpreted as a "Slightly Concerned", indicating that misinformation about vaccines is present among respondents but does not constitute the most significant barrier to vaccine acceptance. This moderate level of concern suggests that while parents are exposed to vaccine-related information, gaps remain in their understanding of fundamental concepts, such as the purpose and benefit of vaccination. The persistence of uncertainty about what vaccines are for may be attributed to insufficient or unclear health communication, particularly in translating technical medical information into language accessible and understandable to parents. Such gaps can lead to confusion, which in turn may foster hesitation, even in the absence of strong opposition to vaccination.

Table 7. *Parents' Concerns and Challenges Regarding Vaccines and Vaccination Programs in Terms of Misinformation*

	Indicators	Mean	SD	Interpretation
1.	I am uncertain what these vaccines are for.	2.39	0.78	Slightly Concerned
2.	I do not have high confidence in the Department of Health when it comes to vaccines.	2.31	0.74	Slightly Concerned
3.	I understand that these vaccines from the Barangay Health Center are not for free.	2.10	0.75	Slightly Concerned
Column Mean		**2.27**	**0.76**	**Slightly Concerned**

Legend: 1-1.74 - No Concern at all (Strongly Disagree); 1.75-2.49 - Slightly Concerned (Disagree); 2.50-3.24 - Concerned (Agree); 3.25-4.00 - Very Concerned (Strongly Agree)

Moreover, the respondents' slight concern toward the Department of Health may reflect lingering effects of past controversies and inconsistencies in public health messaging, which can weaken institutional credibility without fully eroding public trust. The misconception among some parents that vaccines provided at Barangay Health Centers are not free further illustrates the persistence of community-level misinformation and inadequate dissemination of accurate health information. As emphasized by Murthy (2021), misinformation commonly emerges when health information is widely accessible but poorly interpreted or insufficiently verified. In contrast, parents with adequate vaccine knowledge demonstrate a clearer understanding of immunization's protective role (Voo et al., 2021), underscoring the critical role of effective health education. Consistent with the findings of Singh et al. (2022), awareness gaps—manifested through limited knowledge and enduring misconceptions—remain a significant contributor to suboptimal health-seeking behavior.

Table 8. *Parents' Concerns and Challenges Regarding Vaccines and Vaccination Programs in Terms of Vaccine Safety and Effectiveness*

	Indicators	Mean	SD	Interpretation
1.	I don't think vaccines are important.	2.23	0.83	Slightly Concerned
2.	I believe vaccines are not necessary to keep children healthy.	2.34	0.89	Slightly Concerned
3.	I'm not sure that vaccines are effective in preventing diseases.	2.49	0.85	Slightly Concerned
Column Mean		**2.36**	**0.86**	**Slightly Concerned**

Legend: 1-1.74 - No Concern at all (Strongly Disagree); 1.75-2.49 - Slightly Concerned (Disagree); 2.50-3.24 - Concerned (Agree); 3.25-4.00 - Very Concerned (Strongly Agree)

Table 8 shows an overall mean score of 2.36 (*SD* = 0.86), interpreted as Slightly Concerned, indicating that parents do not strongly reject vaccines but still demonstrate a degree of hesitation. This suggests that vaccine acceptance among respondents is generally favorable, yet characterized by uncertainty rather than strong confidence. Among the indicators, the statement "I'm not sure that vaccines are effective in preventing diseases" obtained the highest

mean (M = 2.49), indicating that doubts about effectiveness are more pronounced than doubts about vaccine importance or necessity. This may be attributed to the reduced visibility of vaccine-preventable diseases due to successful immunization programs, leading parents to underestimate the tangible benefits of vaccines.

The items "I don't think vaccines are important" (M = 2.23) and "I believe vaccines are not necessary to keep children healthy" (M = 2.34) reflect mild skepticism rather than outright opposition. These perceptions may be influenced by beliefs in natural immunity, alternative health practices, or the assumption that proper hygiene and nutrition alone are sufficient to maintain health, thereby weakening the perceived necessity of vaccination. As noted by Larson et al. (2022), misinformation, particularly through social media, tends to amplify doubts about vaccine safety and effectiveness without completely changing attitudes. This explains why respondents exhibit hesitation without reaching higher levels of concern. Although concern levels remain low, even slight doubts may affect timely vaccine uptake, adherence to immunization schedules, and acceptance of new vaccines. These findings highlight the need for targeted interventions to strengthen trust, correct specific misconceptions, and clearly communicate evidence of vaccine effectiveness. Transparent and culturally sensitive health education delivered by trusted healthcare professionals may help transform hesitant parents into confident participants in vaccination programs.

Table 9 shows an overall mean score of 3.02 (SD = 0.96), which is interpreted as "Concerned". Unlike the relatively mild doubts observed in vaccine safety and effectiveness, fear-related concerns appear stronger and more emotionally driven. This indicates that parental vaccine hesitancy in this context is not primarily rooted in disbelief in vaccines, but in anxiety about potential harm to their children. The highest mean score was observed for the statement "I am scared of the negative effects of vaccines" (M = 3.18), suggesting that fear of adverse reactions is the dominant concern influencing parental attitudes. This heightened fear may be attributed to parents' psychological tendency to prioritize perceived immediate risks over long-term benefits, particularly when child safety is involved. Reports of side effects, even when rare or mild, are often amplified through anecdotal narratives and social media, leading parents to overestimate vaccine risks.

Table 9. *Parents' Concerns and Challenges Regarding Vaccines and Vaccination Programs in Terms of Fear of Vaccine Side Effects*

Indicators	Mean	SD	Interpretation
1. I am scared of the negative effects of vaccines.	3.18	0.91	Concerned
2. I believe that vaccines will only make my child sick.	2.91	0.98	Concerned
3. I am afraid that my child might pass away because of the vaccines.	2.99	0.99	Concerned
Column Mean	**3.02**	**0.96**	**Concerned**

Legend: 1-1.74 - No Concern at all (Strongly Disagree); 1.75-2.49 - Slightly Concerned (Disagree); 2.50-3.24 - Concerned (Agree); 3.25-4.00 - Very Concerned (Strongly Agree)

The belief that vaccines may make a child sick (M = 2.91) further reflects confusion between normal post-vaccination reactions (such as fever or localized pain) and serious adverse events. This indicates a gap in parental knowledge regarding expected immune responses versus harmful side effects. The absence of clear, consistent explanations from healthcare providers may contribute to the misinterpretation of these reactions, reinforcing parents' fear. Notably, the fear that vaccination could result in death (M = 2.99) highlights the depth of mistrust and emotional distress associated with vaccination decisions. This fear is disproportionate to the actual risk but can be understood within the local context. As Landicho-Guevarra et al. (2021) noted, such events intensified parental fear and created long-term skepticism toward vaccine safety, even extending to routine childhood immunizations. These fears persist despite scientific evidence supporting vaccine safety, demonstrating how trust, once damaged, is difficult to restore. Parents with limited access to credible health information or those heavily exposed to misinformation are more likely to express stronger fears. Studies by Smith et al. (2022) and Skafle et al. (2022) support this finding, emphasizing that misinformation and inadequate risk communication significantly amplify fear-based hesitancy.

Relationship Between Primary Sources of Information and Parents' Decisions Towards Vaccination

Table 10. *Relationship Between Primary Sources of Information that Affect Parents' Decision Towards Vaccination - Chi-Square*

Variables	X^2	df	p-value	Interpretation
1. Accessibility Barriers	25.84	21	.126	Not Significant
2. Parental Vaccine Concerns	39.06	21	.010	Significant
3. Influence of Negative News and Rumors	29.02	21	.146	Not Significant
4. Distrust in Government and Health Institutions	26.04	21	.210	Not Significant

The analysis revealed a significant association between parental vaccine concerns and the primary sources of information (p = .010). This suggests that parents' level of concern about vaccines is influenced by where they primarily obtain information. Specifically, social media, family or relatives, friends or neighbors emerged as common sources of information, with parents reporting moderate-to-high vaccine concerns. This indicates that these sources of information can affect how a parent views vaccines. Whether it is positive or negative, it depends on the information they gather from these common sources. Similarly, reliance on family, relatives, and neighbors was also evident in higher barrier categories. This indicates that these informal sources may contribute to vaccine hesitancy or amplify existing concerns. These findings align with previous studies suggesting that social media platforms are prevalent channels for misinformation and negative vaccine narratives, thereby increasing vaccine hesitancy among parents (Betsch et al., 2020).

Regarding accessibility barriers, while some parents experienced moderate to high barriers, these were distributed across various sources, including health professionals, the Department of Health (DOH), media, and informal networks. There was no clear pattern indicating that any specific source of information significantly influenced perceptions of accessibility. Similarly, the influence of negative news and rumors, often assumed to be driven by informal channels such as social media or word-of-mouth, did not show a statistically significant association with any particular information source. This may imply that, regardless of their primary source, parents are equally exposed to negative content, or the impact of such content is less substantial than anticipated in shaping vaccination decisions. Lastly, disgust towards government and health institutions also showed no significant association with parents' primary sources of information. Even parents who relied on official sources, such as the DOH or health professionals, reported similar levels of distrust as those who received information from informal channels.

Conclusion

This study addresses a major public health concern by exploring factors associated with parental vaccine hesitancy. It highlights how information sources, particularly social media and fear of side effects, are present among parents in San Pablo City, Laguna. By identifying the role of information sources, the study emphasizes the importance of targeted health communication and evidence-based community interventions to address vaccine hesitancy and improve immunization rates. Understanding the pathways through which information informs decision-making is essential for crafting effective, culturally sensitive public health strategies.

The research involved 398 parents or guardians of children aged 0 to 18 from selected barangays in San Pablo City. Using a descriptive-correlational design and a validated, adapted questionnaire, the findings showed that social media was the most dominant source of vaccine information, followed by family/relatives. The most common barriers included fear of side effects, the spread of negative rumors (particularly from the media), and moderate distrust of health institutions. A significant relationship was found between information sources and vaccine concerns, though no significant correlation was identified with other barriers, such as accessibility or trust in government. The influence of emotional and interpersonal dynamics on vaccine decision-making was evident, consistent with the Health Promotion Model by Pender and the 5C's Model of Vaccine Hesitancy.

These findings have important implications for nursing practice and public health initiatives. Strategies should include targeted interventions disseminated through trusted community members, social media, and school-based education, ideally using infographics and participatory health forums. Community health nurses and educators should be trained to address vaccine-related concerns and engage families effectively. However, the study has limitations. It focused on selected barangays in San Pablo City and may not reflect nationwide attitudes. The influence of current health campaigns and the study's correlational design also limit causal interpretations. Future research should consider a broader, more diverse population and adopt longitudinal or mixed-methods approaches to uncover deeper behavioral insights. Qualitative methods could be particularly helpful in exploring the emotional and cultural underpinnings of vaccine decisions. In conclusion, vaccine hesitancy among parents is associated with fear regarding vaccine side effects and vaccine concerns, especially through digital platforms. To address this, public health interventions should focus on accurate communication, community engagement, and trust-building to enhance vaccine coverage and protect community health.

Contributions of Authors

Author 1: conceptualization, literature review, research design, data collection, data analysis, interpretation of results, manuscript drafting, and final revision
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Author 4: conceptualization, literature review, research design, data collection, data analysis, interpretation of results, manuscript drafting, and final revision
Author 5: supervision, methodological guidance, refinement of the conceptual framework, manuscript review
Author 6: academic mentoring, research supervision, methodological consultation, and manuscript review

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Conflict of Interests
The authors declare no conflict of interest.

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